Massachusetts Division of
Health Care Finance and Policy

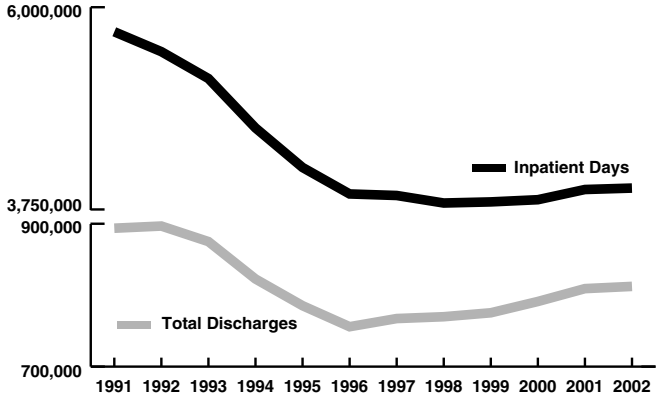
Massachusetts Inpatient Hospital Trends

ANALYSIS IN BRIEF

Number 6
April 2004

Increases in inpatient hospital utilization have captured the attention of policy makers nationwide. In the United States, hospital discharges decreased sharply during most of the 1980s before flattening out in the late 1980s and early 1990s. In Massachusetts, discharges declined throughout the 1980s and early 1990s, but then increased 7% between 1996 and 2002 (see Figure 1). The average length of stay in US acute care hospitals also decreased steadily, producing a reduction in total hospital days for nearly every year from the early 1980s to 2001. Total acute care inpatient days in Massachusetts also declined, but then flattened out in 1998. In 1998, there were 33% fewer days than in 1991, but in 2002, there were 4% more days than in 1998 (see Figure 1). This issue of Analysis in Brief examines demographic and health care market trends from 1991 (when diverging US and Massachusetts discharge trends emerged) to 2002 (the most current data available) to determine which factors have contributed to the decline and subsequent growth of inpatient hospital utilization in Massachusetts.

Figure 1: Massachusetts Hospital Discharge Trend 1991-2002



Source: Division of Health Care Finance and Policy, hospital discharge data

Deliveries

Part of the downward trend in Massachusetts hospitalizations from 1991 to 1996 was due to a steady decrease in the number of deliveries. In 1996, there were close to 20,000 fewer childbirth related discharges (one discharge each for mother and child) than there were in 1991. Since 1996, the trend in deliveries has remained almost flat.

Non-Resident Discharges

In Massachusetts, non-resident discharges also decreased from 1991 to 1996 and subsequently increased. In 1996, there were 10,397 fewer non-resident discharges than in 1991. In 2002, however, there were 4,181 more non-resident discharges than in 1996.

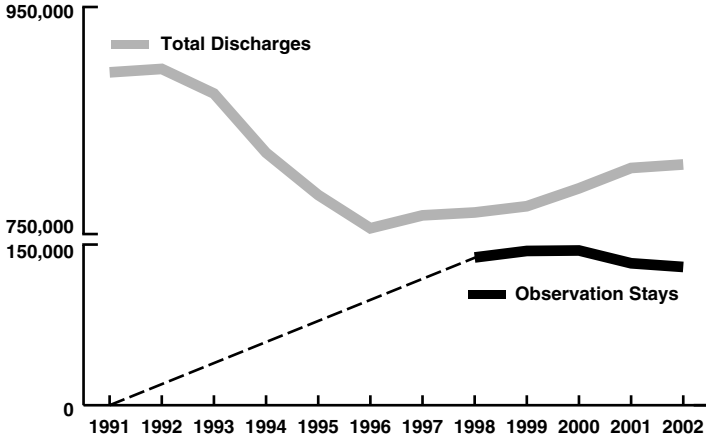
Together, the decline in deliveries and non-Massachusetts resident discharges accounted for approximately 24% of the decrease in total discharges from 1991 to 1996.

Observation Stays

The marked increase in observation stays (a clinical and payment category that falls below the admission requirements and reimbursement for an inpatient hospital admission) influenced the dramatic reduction of inpatient discharges in the early 1990s.

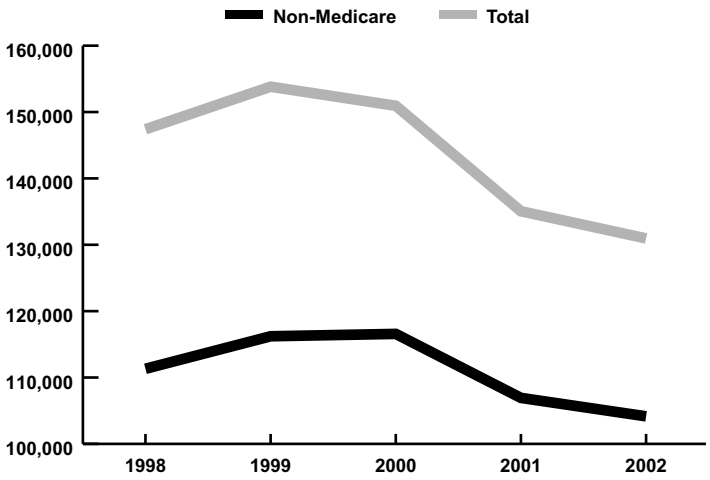
The observation stay category emerged from the Medicare Prospective DRG Payment System in the late 1980s, but anecdotal reports from the Massachusetts Hospital Association, and correspondence with hospitals and insurers indicate that observation stays were not widely used by payers other than Medicare until 1992 or 1993.

Figure 2: Massachusetts Hospital Trends 1991-2002



Source: Division of Health Care Finance and Policy, hospital discharge data and outpatient observation stay data

Figure 3: Massachusetts Outpatient Observation Stays 1998-2002



Source: Division of Health Care Finance and Policy, hospital outpatient observation stay data

By 1998, non-Medicare observation stays exceeded Medicare observation stays. In the absence of reliable observation stay data prior to 1998, this analysis assumes that non-Medicare observation stays started from zero (or near zero) in the early 1990s and rose to approximately 112,000 in 1998 (see Figure 2).[2] Since inpatient discharges decreased by 137,026 from 1991 to 1996, observation stays may have replaced a large portion of what would have been inpatient hospitalizations.

Any influence that observation stays had on reducing total discharges during the first half of the decade, however, receded during the late 1990s. Total observation stays declined from 1999 to 2002, and the steepest decline occurred from 2000 to 2001 (see Figure 3) concurrent with the sharpest increase in inpatient hospital discharges.

Outpatient Surgery Visits

Since the early 1980s, outpatient surgeries in the US had been increasing as technological advances eliminated the need for an overnight inpatient stay for many procedures. In the early to mid-1980s the number of outpatient surgeries increased at double-digit rates, but by the 1990s growth had slowed (although the number of outpatient surgeries continued to increase). The mitigating effect that outpatient surgeries had on inpatient discharges finally weakened: from 1999 to 2002 the annual growth rate of outpatient surgical visits in the US dipped below two percent, the lowest growth rate in 20 years.[3]

Population and Age Groups

The population of Massachusetts grew steadily throughout the 1990s (2.8% from 1990 to 1996, and 2.7% from 1996 to 2000). Most age groups increased in size, although the population ages 50 to 59 grew the most, while the population ages 60 to 69 decreased slightly.

In 1996, the number of discharges for people ages 0 to 64 was 24% less than in 1991. By 2002, discharges for this age group had increased 5% over the 1996 number. During these same time periods, the 85 and older age group experienced an 8% decrease followed by a 17% increase in discharges (see Figure 4). Since approximately 60% of all inpatient hospital discharges are for people ages 0 to 64, this age group has had the greatest effect on hospital utilization trends overall. Even so, although people ages 85 and

older represent less than 2% of the total population, they also affect the trend because they are hospitalized at 6.6 times the rate of people ages 0 to 64. From 1996 to 2002, people ages 85 and older experienced an increase in hospitalizations per 1,000 population that was three times the increase of people ages 0 to 64. Since the 85 and older age group is among the fastest growing age groups, it is likely to have an even greater influence on discharge trends in the future.

Figure 4: Hospital Discharges per 1,000 Population by Age Group, 1991-2002

Age Group	1991	1996	2002	% change 1991-96	% change 1996-02
Under 65	115	87	91	-24%	5%
65-74	281	260	252	-7%	-3%
75-84	423	415	421	-2%	1%
85+	560	513	600	-8%	17%

Source: Massachusetts DHCFP, Hospital Discharge Data; United States Census Bureau 1990 and 2000; and Massachusetts Institute for Social and Economic Research (MISER) Population Estimates, 1996.

Medicaid

MassHealth (Medicaid) hospitalizations increased from 1996 to 2002, but hospitalizations per 1,000 MassHealth (Medicaid) members decreased. While the expansion of MassHealth in 1997 resulted in a 43% increase in enrollment, it produced just a 30% increase in inpatient hospital discharges. In addition, observation stays for the MassHealth population declined 25% from 1996 to 2002.

Medicare

From 1996 to 2002, Medicare HMO [a less costly alternative to the combination of traditional fee-for-service (FFS) Medicare and costly Medigap policies] membership increased 34%, while hospitalizations nearly tripled from 89 hospitalizations per 1,000 Medicare HMO members in 1996 to 250 per 1,000 Medicare HMO members in 2002.

Despite this dramatic increase in the hospitalization rate for Medicare HMO members, and a slight decrease in hospitalizations for Medicare FFS beneficiaries (from 362 discharges per 1,000 beneficiaries in 1996 to 353 per 1,000 beneficiaries in 2002), hospitalization rates in 2002 remained 41% higher for FFS beneficiaries (353 per 1,000) than for Medicare HMO members (250 per 1,000). As a result, it is unclear whether Medicare HMO practices contributed to the upward trend or whether Medicare HMOs simply enrolled more sick people (from Medicare FFS). Regardless of the reason for the increase, Medicare HMO discharges account for only 16% of all Medicare hospitalizations.

HMO Penetration Rate

Between 1991 and 1996, when hospital discharges were decreasing, the HMO penetration rate grew at an annual rate of 6%. [4] Between 1996 and 1999 when the number of hospital discharges began to increase, HMO penetration picked up, growing at an annual rate of nearly 12% before decreasing in 2000. No clear pattern emerged linking the HMO penetration rate and the number of hospital discharges.

Major Diagnostic Categories (MDCs) and Diagnostic Related Groups (DRGs)

The distribution of MDCs did not change appreciably between 1991 and 2002, suggesting that there was not a substantial change in the disease mix of people who were treated in Massachusetts hospitals.

Discharge trends for certain DRGs are difficult to interpret because some variations may result from coding practices rather than changes in the types of hospital inpatient stays. Nonetheless, examining changes in the top 25 DRGs for Massachusetts residents ages 0 to 64 revealed that in 1991, 1996 and in 2002, there were more discharges for psychosis than for any other DRG. Along with psychosis, discharges for several other DRGs also increased from 1991 to 1996, and then accelerated their increase from 1996 to 2002. These DRGs included: opiod abuse, major joint and limb reattachment (which includes knee replacement), chronic obstructive pulmonary disease (COPD), and percutaneous cardiovascular procedure.

The number of discharges for many other DRGs decreased from 1991 to 1996, particularly for the population under age 65, and then increased between 1996 and 2002. No single DRG, however, drove a major portion of the overall trend.

Analysis in Brief

Analysis in Brief reflects the goal of the Division of Health Care Finance and Policy to monitor changes in the health care marketplace through useful and timely analyses of health care data. Several times a year, this publication reports on our analyses of health care costs, quality and access.

Discussion

It is clear that the reversal in hospitalization trends in 1996 is not a blip in an otherwise downward trend. Observation stays likely substituted for at least some inpatient admissions, and after increasing dramatically for most of the 1990s, have been declining since 1999. The introduction of new outpatient surgeries in the US, which grew at double-digit rates in the 1980s, has nearly flattened out, thereby ending its restraining effect on hospitalizations.

To date, the most significant change in hospitalization rates has been for the population under age 65: between 1991 and 1996 their hospitalization rate decreased more than any other age group. Since 1996, inpatient hospitalization rates have increased the most for the age 85 and older population. Since this group is one of the fastest growing segments of the population, it is likely to have an inflationary effect on inpatient hospitalization trends in the future.

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1. American Hospital Association, *Trend Watch*, November 2001, Volume 3, No. 3.
2. Due to the dearth of outpatient observation stay data prior to 1998, an estimate for the increase from 1991 to 1996 was derived using 1998 data and assumed that there were no observation stays for the under age 65 population prior to 1991.
3. American Hospital Association, *Trend Watch: Chartbook 2003*, "Trends in Inpatient Utilization in Community Hospitals 1980-2001."
4. The HMO penetration rate for 1991 was unavailable and therefore estimated by averaging the rates for 1990 and 1992. See American Association of Retired People (AARP), *Reforming the Health Care System: State Profiles*, 1991, 1997, 2000. 2001.

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Publication Number: CR1035